Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

NATIONAL WEATHER SERVICE INSTRUCTION 10-401
OCTOBER 4, 2002

Operations and Services
Fire Weather Services, NWSPD 10-4

FIRE WEATHER SERVICES PRODUCT SPECIFICATION

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OPR: OS22 (D. Billingsley) **Certified by:** W/OS22 (J. Lee)
Type of Issuance: Initial.

SUMMARY OF REVISIONS: Together with NWSPD 10-4, this directive supercedes WSOM Chapter D-06, "Fire Weather Services Program," Issuance 91-11, dated August 22, 1991; OML 03-95, dated April 27, 1995; OML 04-99, dated September 9, 1999.

Signed 10/04/02

Gregory A. Mandt Date
Director, Office of Climate,
Water, and Weather Services

Fire Weather Services Product Specification

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Note: Weather Forecast Offices (WFOs) that have already coordinated Annual Operating Plans (AOPs) which differ from policies/procedures contained in 10-401 may postpone implementation of these policies/procedures until the end of the local fire season. Differences between 10-401 and current AOP agreements must be summarized to the Regions as soon as possible after this Instruction is signed and placed into the directives system. All WFOs must fully comply with 10-401 no later than 11/30/2002.

1. Introduction. Weather Forecast Office (WFO) forecast staff will issue a core suite of fire weather products consisting of the following for their fire weather service area:

a. Fire Weather Pre-Suppression Forecasts (fire weather zones)
b. National Fire Danger Rating System Forecasts (NFDRS)
c. Spot Forecasts
d. Fire Weather Watches
e. Red Flag Warnings

Issuance of optional products in the national fire weather suite including smoke and land management forecasts, and fire danger statements is under the discretion of the Regional Headquarters and WFOs.

WFOs may provide localized services or products to support customer requirements assuming these services or products remain within the bounds of the NWS mission and do not conflict with the national fire weather services program or product suite. These local applications will be coordinated with Regional Headquarters and included in the WFO or consolidated WFO Annual Operating Plan (AOP, NWS Instruction 10-404). The Office of Climate Water and Weather Services (OCWWS) will be responsible for approving newly developed products or innovations for inclusion into the national fire weather services product suite.

WFOs with no public wildlands (federal, state, or local), fire season, or customer requirements may be exempt from producing all or a portion of the core national fire weather product suite with approval from both the associated Regional Headquarters and OCWWS.

Meteorologists-in-Charge (MICs) and WFO fire weather program leaders will reassess annually the criteria for issuance, frequency of issuance, format, content, dissemination, etc. for each fire weather product. This information should be clearly defined in the WFO or consolidated AOP.

Examples of the five required products are shown in the appropriate section or in Appendix A.

2. Fire Weather Products. Note: WMO headers for the products in this section are shown for the continental United States. Alaska products use AK in place of US, e.g., instead of FNUS5i, Alaska FWFs will use FNAKii. Similarly Hawaiian products use HW in place of US, e.g., FNHWii.

2.1 Fire Weather Forecast (FWF) Product (AWIPS I.D. - FWF, World Meteorological Organization (WMO) Header - FNUS5i). The Fire Weather Forecast is a zone-type product used by land management personnel primarily for input in decision-making related to pre-suppression and other planning.

2.1.1 Issuance Criteria and Frequency. The FWF is a routine product and should be issued at least once daily during the local fire season. The AOP will contain actual issuance criteria and frequency of issuance information based on customer needs. The FWF will be updated when a Fire Weather Watch or a Red Flag Warning is issued or cancelled. The FWF will be corrected when a typographical/format error is detected.

2.1.2 Format. Forecasters will compose the product in either the standardized narrative format (Exhibit 2-1, 2-2) or the standardized tabular format (Exhibit 2-3). The standard format used by an office depends on customer requirements.

Exhibit (2-1) - Format of a morning narrative Fire Weather Forecast.

```
FNUS5i KNNN DDHHMM
FWFNNN

FIRE WEATHER FORECAST (FOR name of area, optional)
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 900 AM MDT FRI JUL 10 1999)

...HEADLINE...  (REQUIRED for Red Flag Warnings and Fire Weather
Watches....significant feature(s) at other times recommended)

.DISCUSSION...(concise, clear, non-technical explanation of the
current/forecasted fire  weather)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS CODING)
GEOGRAPHICAL DESCRIPTORS (including land management governing units and
optional fire weather zone numbers)

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate
zone grouping) ...

.TODAY...
SKY/WEATHER.........
MAX TEMPERATURE.....
   24 HR TREND...... (optional until IFPS formatters implemented)
MIN HUMIDITY........
   24 HR TREND...... (optional until IFPS formatters implemented)
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

.TONIGHT...
SKY/WEATHER.........
MIN TEMPERATURE.....
   24 HR TREND...... (optional until IFPS formatters implemented)
MAX HUMIDITY........
   24 HR TREND...... (optional until IFPS formatters implemented)
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

.TOMORROW...
SKY/WEATHER.........
MAX TEMPERATURE.....
MIN HUMIDITY........
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

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```

```
[forecast for next geographical descriptor and fire weather zone group]

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$$

.FORECAST DAYS 3 THROUGH 7... (winds must be included days 3-5; other elements
per locally-established policy)
.DAY3... (days can be combined, e.g., .SUNDAY THROUGH TUESDAY...)
.DAY4...
.DAY5...
.DAY6... (days 6 and 7 optional until IFPS formatters implemented)
.DAY7...

.OUTLOOK FOR DAY MONTH DATE THROUGH DAY MONTH DATE (per local-established
policy - Days 8-14, 30 and 90 day outlooks when issued)

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$$

NAME (OPTIONAL)
```

Exhibit (2-2) -Format of an afternoon narrative Fire Weather Forecast.

```
FNUS5i KNNN DDHHMM
FWFNNN

FIRE WEATHER FORECAST (FOR name of area, optional)
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 300 PM MDT THU JUL 10 1999)

...HEADLINE...  (REQUIRED for Red Flag Warnings and Fire Weather
Watches....significant feature(s) at other times)

.DISCUSSION...(concise, clear, non-technical explanation of the
current/forecasted fire  weather)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS CODING)
GEOGRAPHICAL DESCRIPTORS (including land management governing units and
optional fire weather zone numbers)

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate
zone grouping) ...

.TONIGHT...
SKY/WEATHER.........
MIN TEMPERATURE.....
   24 HR TREND...... (optional until IFPS formatters implemented)
MAX HUMIDITY........
   24 HR TREND...... (optional until IFPS formatters implemented)
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

.TOMORROW...
SKY/WEATHER.........
MAX TEMPERATURE.....
   24 HR TREND...... (optional until IFPS formatters implemented)
MIN HUMIDITY........
   24 HR TREND...... (optional until IFPS formatters implemented)
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
```

```
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

.TOMORROW NIGHT...(optional until IFPS formatters implemented)
SKY/WEATHER.........
MIN TEMPERATURE.....
MAX HUMIDITY........
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

.FOLLOWING DAY (Day 2)... (optional until IFPS formatters implemented)
SKY/WEATHER.........
MAX TEMPERATURE.....
MIN HUMIDITY........
WIND.(wind defn).... (include definition of wind, e.g. 20 FT/10-min avg)
                     (slope/valley...general wind...etc.)
                     (ridge top...etc.)
LOCAL OPTIONAL ELEMENTS...(transport winds, mixing heights, LAL, Haines, CWR,
                           etc.)

=
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[forecast for next geographical descriptor and fire weather zone group]

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$$

.FORECAST DAYS 3 THROUGH 7...(winds must be included days 3-5; other elements
per locally-established policy; if day 2 not included above until IFPS, then
this section should start at day 2)
.DAY3... (days can be combined, e.g., .SUNDAY THROUGH TUESDAY...)
.DAY4...
.DAY5...
.DAY6... (days 6 and 7 optional until IFPS formatters implemented)
.DAY7...

.OUTLOOK FOR DAY MONTH DATE THROUGH DAY MONTH DATE (per local-established
policy - Days 8-14, 30 and 90 day outlooks when issued)

=
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```

Exhibit (2-3) - Format for the Tabular Fire Weather Forecast. Format shown is for the afternoon issuance; morning issuance is identical except for three periods instead of four. **Bold text** denotes required elements.

```
FNUS5i KNNN DDHHMM
FWFNNN

FIRE WEATHER FORECAST (name of area - optional)
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 300 PM EST TUE JAN 1 2001)

...HEADLINE... (REQUIRED for Red Flag Warnings and Fire Weather
Watches...significant feature(s) at other times recommended)

.DISCUSSION...(concise, clear, non-technical explanation of the
current/forecasted fire weather)
```

```
SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)
GEOGRAPHIC DESCRIPTORS (such as land management units, political boundaries,
                        geographic features, and/or fire weather zones)
TIME-DATE (repeated)

...RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each appropriate
zone grouping) ...
```

PARAMETER	TONIGHT	TOMORROW	TOMORROW NIGHT	FOLLOWING DAY
CLOUD COVER	**(CLOUDY, MCLDY, PCLDY, CLEAR)**			
CHANCE PRECIP (%)	**(Percent chance precip 0-100 or areal coverage)**			
PRECIP TYPE	**(NONE, DRIZL, FRZ RAIN, SNOW/RAIN, RAIN, TSHWR)**			
TEMP (24H TREND)	**(Max/min temps as zone avg or extremes, trend not included in 3rd or 4th period PM forecasts)**			
RH % (24H TREND)	**(Max/min relative humidity as zone avg or extremes, trend not included in 3rd or 4th period PM forecasts)**			
20FT WND MPH(VALLEY/AM)	**(8 pt compass or upslope/downslope and MPH w gusts, can be VALLEY or AM wind)**			
20FT WND MPH(RIDGE/PM)	**(8 pt compass and MPH w/gusts, can be PM or ridge top winds)**			
PRECIP DURATION	(Hours of precip in period)			
PRECIP BEGIN	(Onset of precip probability)			
PRECIP END	(Cessation of precip probability)			
PRECIP AMOUNT	(Zone avg QPF inches)			
LAL	(Lightning Activity Level)			
HAINES INDEX (LOW)	(As applicable)			
HAINES INDEX (MID)	(As applicable)			
HAINES INDEX (HIGH)	(As applicable)			
MIXING HGT (AGL/MSL)	(Feet or meters)			
TRANSPORT WIND(KTS)	(8 pt compass)			
VENT RATE (KT-FT)	(Mixing height times transport wind)			
DISPERSION	(Locally defined category, e.g. GOOD)			
SUNSHINE HOURS	(Total hours of sun)			
(OTHER LCL OPTIONS)	???	???		

```
REMARKS...APPROPRIATE REMARKS TO ADD VALUE AND MARK SIGNIFICANT WEATHER
CHANGES.  INSERT 'NONE' IF NONE.

$$

[forecast for next geographical descriptor and fire weather zone group]

$$

.FORECAST FOR DAYS 3 THROUGH 7... (wind required days 3 through 5; other
elements per locally-established policy; days 3-7 may be grouped in any
combination)
.DAY 3...
.DAY 4...
.DAY 5...
.DAY 6... (days 6 and 7 optional until IFPS formatters implemented)
.DAY 7...

.OUTLOOK (per local-established policy - Days 8-14, 30 and 90 day outlooks
when issued)

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2.1.3 Content. Include the following required elements in both the narrative and tabular versions of the Fire Weather Forecast product. Some parameters, as noted, may not be implemented until AWIPS IFPS software has full fire weather formatter capability.

a. Headlines. A headline is required when Red Flag Warnings and/or Fire Weather Watches are in effect. The headline will include the warning type, location, and effective time period. Describe the location in terms of geographic or other easily identified markers, such as forests, parks, cities, towns, rivers, or highways. Also, include the headline for a warning and/or watch in each appropriate zone grouping. Significant trends of locally-defined critical weather elements should be headlined for non-watch or non-warning periods.

b. Discussion. The discussion should be a brief, clear, non-technical description of weather patterns that influence the weather in the forecast area. The emphasis of the discussion should be on the first two days of the forecast period, though latter periods may be included if significant weather is expected to impact safety or operations, and the forecaster has reasonable confidence the weather will occur.

c. UGC FIPS Coding and Geographic descriptors. Use the zone format (Z) of the Universal Generic Code (UGC) to identify each specific forecast zone within a FWF segment.

d. Forecast Period. The FWF product should have a minimum of three 12-hour time periods in the morning forecast, and four 12-hour time periods in the afternoon forecast (only two periods required in the afternoon narrative until IFPS fire weather formatters implemented). Insert locally-established weather elements, if any, in the Optional Elements section at the end of each time period in the narrative version and after the required elements in the tabular version. All issuances should have a general outlook section valid to day 5. Days 6 and 7 are optional until IFPS fire weather formatters are implemented. In this general outlook section, a forecast period is a 24-hour block of time beginning at 12 midnight and ending at 12 midnight the next day.

e. Sky/Weather. Forecasters should follow the same guidelines for sky/weather and weather descriptors as those used in the Public Zone Forecasts. (Refer to NWS Instruction 10-502).

f. Maximum or Minimum temperatures and 24-hour temperature trends. Temperature trends are comparisons to the previous day's values and are optional until IFPS formatters are implemented.

g. Maximum or Minimum relative humidity and a 24-hour trend (optional until IFPS formatters implemented). Minimum relative humidity should be forecast during the daytime and the maximum relative humidity during the nighttime. The range of the relative humidity forecasts should be 5 percent. However, where large elevation differences exist within a zone, ranges of 10 percent or more may be forecast, along with explanations for the larger ranges. In the narrative versions of the FWF, qualitative descriptions (poor, moderate, good) of nighttime humidity recovery are left as a regional or WFO option.

h. Wind. Indicate the prevalent direction and speed of the wind for each time period. Maximum gusts, erratic winds, and wind shifts should be mentioned when deemed significant. Wind directions should not be abbreviated in the narrative-style forecast. The description of the wind should be indicated (i.e., 20-foot level, 10-minute average, etc.). Use the 8-point compass for the wind direction.

i. 3-7 Day Outlook (days 6, 7 optional until IFPS formatters implemented). Weather elements in the outlook period may include any or all of the mandatory day 1 and day 2 forecast elements. Forecasters will include the wind in the 3 to 5 day period and, when significant, beyond day 5 if appropriate. Wind forecasts should reflect the most significant synoptically driven wind affecting fire operations or ignition. The criteria can be locally or regionally derived, but the suggested threshold is a sustained synoptic scale wind of 15 miles an hour or more (20 foot 10 minute average wind). Forecasters should insert local phraseology for winds less than 15 miles an hour (e.g., upslope/downslope winds less than 15 miles an hour", "light winds", "winds generally less than 15 mph", etc.). Critical humidity conditions to 5 days (or 7 days if appropriate) as established by local customers in the AOP, should be included.

Depending on local user requirements, forecasters may add optional elements below the required set of forecast elements per exhibits 2-1, 2-2, and 2-3. WFOs have the choice of including the local optional elements section in as many periods as desired in both the morning and afternoon narrative formats. Examples of user-requested optional elements are: transport winds, mixing heights, lightning activity level (LAL), Haines index, chance of wetting rain (CWR), etc..

2.2 National Fire Danger Rating System (NFDRS) Forecast Product (AWIPS I.D. - FWM, WMO Header - FNUS8i). The National Fire Danger Rating System measures wildland fire danger at observation sites throughout the contiguous United States. The National Weather Service role in NFDRS is forecasting weather input which, combined with user input, allows the NFDRS software to predict the next day's fire danger indices.

Weather observations valid for approximately 1300 Local Standard Time (LST) are taken by the land management agencies and transmitted through AWIPS using the FWO product ID. This product should have a header above the data which states "**Listing of Observations**". Forecasters will use these observations as a basis for generating forecasts valid 24 hours later (the NFDRS forecast).

When the NWS NFDRS Forecast (FWM) is sent to the Weather Information Management System (WIMS), the product is automatically combined with information entered by land management personnel to provide the NFDRS fire index forecast. At roughly 1500 LST, the AWIPS product **NMCFWOXXX** should be available if the forecast values were accepted into the NFDRS system. The product will look similar to the observed values reported an hour

earlier, but the header should read: **Listing of Forecasted Observations.** If the page is blank, some formatting error prevented the forecast values from being accepted.

2.2.1 Issuance Criteria and Frequency. Where requested by the customer, NFDRS forecasts will be issued at least once a day. A current observation *must* be received for a NFDRS forecast to be generated.

2.2.2 Format. The NFDRS Forecast will follow the comma delimited format as shown:

ZONE/FCST,NO,YYMMDD,13,WX,TEMP,RH,LAL1,LAL2,WIND,10HR,TX,TN,RHx, RHn,PD1,PD2,WETFLAG

An example of the product, formatted for transmission into AWIPS, is displayed below:

```
FNUS85 KBOI DDHHMM
FWMBOI

ZONE,403,011027,13,1,-3,0,1,1,0,0,,,,,0,0,N
ZONE,404,011027,13,0,3,0,1,1,0,0,,,,,0,0,N
ZONE,408,011027,13,0,4,-5,1,1,-3,0,89,68,75,22,0,0,N
FCST,102709,011027,13,0,4,-5,1,1,-3,0,80,61,80,32,0,0,N
```

Follow the format precisely in order for the forecasts to be used as NFDRS input. Separate each element by a comma with no intervening spaces. (Some elements may not be forecast, but are represented by the null space between two consecutive commas.)

2.2.3 Content. Forecasters should include the following in the NFDRS forecast:

a. **ZONE/FCST** Shows whether this forecast is for an NFDRS zone or individual station. Zone average trends are forecast when enough observations are available for the zone area. Individual site forecasts are done where only a few observations are available.

b. **YYMMDD** Year, month, and day valid forecast time.

c. **NO** NFDRS Zone Number (or individual NFDRS site number)

d. **13** Always 1300 LST

e. **WX** Weather valid at 1300 LST tomorrow. Valid entries are:

0	clear
1	scattered clouds (1/8 to 4/8)
2	broken clouds (5/8 to 7/8)
3	overcast clouds (more than 7/8)
4	foggy
5	drizzle
6	raining
7	snowing or sleeting
8	showers (in sight or at the station)
9	thunderstorm

(Categories 5, 6, or 7 sets NFDRS index to 0)

f. **TEMP** Temperature in deg F valid at 13 LST (or temperature trend + or -)
g. **RH** Relative humidity in percent valid at 13 LST (or RH trend + or -)
h. **LAL1** Lightning Activity Level 1400 LST to 2300 LST
i. **LAL2** Lightning Activity Level 2300 LST to 2300 LST
j. **WIND** Wind speed in mph valid at 13 LST (or wind speed trend + or -, 20 ft level/10 minute average)
k. **10HR** 10 hour timelag fuel moisture in percent valid at 13 LST (or trend + or -)
l. **Tx** Max temperature from 1300 LST to 1300 LST tomorrow
m. **Tn** Min temperature from 1300 LST to 1300 LST tomorrow
n. **RHx** Max relative humidity from 1300 LST to 1300 LST tomorrow
o. **RHn** Min relative humidity from 1300 LST to 1300 LST tomorrow
p. **PD1** Precipitation duration in hours 1300 LST to 0500 LST
q. **PD2** Precipitation duration in hours 0500 LST to 1300 LST
r. **WETFLAG** Y or N. Indicates whether liquid water will be on the fuels at 13 LST. (Use with caution - a "Y" will set all the NFDRS indices to zero!)

2.3 Site-specific (Spot) Forecasts (AWIPS I.D. - FWS, WMO Header - FNUS7i). WFOs will provide site-specific (spot) forecast service upon request of any federal user agency to support land management activities associated with wildland fire (including prescribed burning). Provision of non-federal, non-wildfire spots will be restricted to purposes directly related to protecting life and property; or whenever some aspect of federal resources are involved (i.e., personnel, equipment, or interagency protection agreements providing such involvement). Spot forecasts may also be issued for other activities such as rehabilitation and seeding operations (for federal user agencies), and HAZMAT incidents upon customer request.

MICs and fire weather program leaders should coordinate with local users and establish local policies/procedures for the site specific spot services in their fire weather services area. These policies/procedures should be clearly defined in the AOP. Forecasters and the spot requester should determine the specific contents, issuance frequency, means of communication, and other details at the time of the initial request for spot service.

At or before the time of a spot request, the requesting agency should provide information about the location, topography, fuel type(s), elevation(s), size, ignition time, and a contact name(s) and telephone number(s) of the responsible land management personnel. Also, representative observation(s) at, or near, the site of the planned prescribed burn, or wildfire, should be available to the responsible WFO prior to the issuance of the spot forecast(s). In the case of a wildfire, or a prolonged prescribed burn, land management personnel should provide updated observations and information to NWS during the course of the event.

NWS Spot (national version of WRSpot) is the national standard for requesting and issuing spot forecasts and should be used when possible. In times when internet access is hindered or not

possible, spot forecasts may be requested and disseminated through another mutually-agreed-upon method.

2.3.1 Issuance Criteria and Frequency. Spot forecasts are non-routine products issued at the request of the user. Spots will include the phrase "VALID UNTIL <up to 24 hours from issuance>" , e.g. "VALID UNTIL 830 PM MDT FEB 2 2001". Forecasters may change this valid time within (inclusive) the period of 6 to 24 hours from issuance. This type of phrase is intended to encourage land management agencies to request spots often in wildfire scenarios, and to request spots within 24 hours of commencing a prescribed burn.

Spot forecasts for wildland fire (including prescribed burns) should be updated when the forecaster becomes aware of any significant change that may affect fire suppression or prescribed burning operations and/or the safety of personnel. Updates may consist of a verbal briefing in lieu of a written product. Land management personnel should contact the appropriate WFO for a spot update if forecast conditions appear unrepresentative of the actual weather conditions.

2.3.2 Priority of Spots. In some instances, wildfires may pose a higher threat to life and/or property than a severe thunderstorm, flash flood, or tornado; hence, the issuance of spot forecasts should be prioritized in a manner similar to that of short-fuse warnings.

2.3.3 Format for Wildfire Spot Forecasts. Forecasters will use the national standard for spot forecasts for wildfires as shown below in Exhibit 2-4. This standard ensures that fire suppression personnel brought in from another area of the country will be proficient in the interpretation of any spot forecast issued for wildfires.

Exhibit (2-4) - Standardized Spot Forecast for Wildfires (also for HAZMAT and Search and Rescue)

```
FNUS7i KXXX DDHHMM
FWSXXX

SPOT FORECAST FOR (location or name of burn)
ISSUED BY NATIONAL WEATHER SERVICE (CITY STATE)
TIME-DATE (800 AM MST TUE NOV 27 2001)

VALID UNTIL <12 hours from issuance>
IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER SERVICE.

...HEADLINE...(if a fire weather watch or red flag warning is in effect, a
headline is required - otherwise, a headline is recommended for every
issuance.)

DISCUSSION...(required)

FIRST PERIOD
SKY/WEATHER.........
TEMPERATURE.........
HUMIDITY............
WIND................(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)
```

```
SECOND PERIOD
SKY/WEATHER.........
TEMPERATURE.........
HUMIDITY............
WIND................(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)

THIRD PERIOD
SKY/WEATHER.........
TEMPERATURE.........
HUMIDITY............
WIND................(specify the wind level)
OPTIONAL ELEMENTS...(as requested by the users)

FORECASTER...(optional)
```

2.3.4 Format for Non-Wildfire Spot Forecasts (HAZMAT and Search/Rescue follow format in 2.3.3). Though the content and number of forecast periods may be different, the format for non-wildfire spot forecasts should conform to the standard format for wildfire spot forecasts (as in section 2.3.3 above). Other formats should be approved by the appropriate Regional Headquarters and coordinated with the users in the AOP.

2.3.5 Content. The standard format for wildfire spot forecasts defines the required elements: headlines (when RFW in effect), discussion, sky/weather, temperature, relative humidity, and wind. Optional elements (transport winds, mixing depth, LAL, Haines index, chance of wetting rain, etc.) should be defined by the requesters or by agreement with the land management agencies in the AOP.

The content for non-wildfire spot forecasts (including prescribed burns and other land management non-wildland fire activities) is determined by the requester. These spot forecasts may contain any of the above required or optional elements plus any other agreed upon parameters. The period or number of periods in the spot should be defined by the user upon request of the spot forecast.

Forecasters should be aware of the critical weather element thresholds for the spot forecast area. These thresholds are often determined by a fire behavior analyst or other fuels/fire behavior expert and define ranges of wind, relative humidity, etc. that, if realized, may cause significant increase (or decrease) in fire behavior. In most cases, such information can be obtained directly from the on-site requester. In the case of prescribed burns, these thresholds are often defined in the "Burn Plan", which is normally developed and approved well before a spot forecast is requested.

Since spot forecasts cover a small geographical area, areal weather descriptors (such as scattered showers, isolated showers, etc.) should be used with discretion. The timing of significant events is important and, in the case of wind shifts, extremely critical. Wind forecasts should clearly indicate the level of the wind forecast (i.e., eye level, 20-ft level).

2.4 Fire Weather Watch/Red Flag Warning (AWIPS I.D. - RFW, WMO Header - WWUS8i). Forecasters will issue Fire Weather Watches/Red Flag Warnings when the combination of dry fuels and weather conditions support extreme fire danger.

The dissemination of these products should reflect local user capabilities to provide the most efficient means of getting watches/warnings to the appropriate fire suppression personnel. Fire Weather Watch/Red Flag Warning dissemination methods will be detailed in the AOP.

Use the same product identifier (RFW) for issuing, updating, and canceling Fire Weather Watches and Red Flag Warnings. Forecasters will also update the FWF product when a RFW product is issued, updated, or cancelled.

2.4.1 Issuance Criteria for Red Flag Events. Red Flag Event criteria is determined by coordination between WFO personnel and land management customers in the WFO fire weather service area. Each WFO should have their specific criteria well-marked in the AOP and Station Duty Manual (SDM).

Red Flag Event criteria consists of both fuel and weather parameters. WFO fire weather program leaders should monitor NFDRS indices and coordinate with land management personnel to keep abreast of the fuel conditions, and make sure this information is available to WFO forecasters. Suggested meteorological criteria for a Red Flag Event includes:

a. Lightning after an extended dry period
b. Significant dry frontal passage
c. Strong winds
d. Very low relative humidity
e. Dry thunderstorms

Forecasters should coordinate with local fire and land managers prior to the issuance of a Fire Weather Watch or Red Flag Warning.

2.4.1.1 Fire Weather Watch. Forecasters should issue a Fire Weather Watch when there is a high potential for the development of a Red Flag Event. The watch may be issued for all, or selected, portions within a fire weather zone or region. A Fire Weather Watch will remain in effect until the watch: 1) is cancelled, 2) is upgraded to a Red Flag Warning, or 3) expires. A Fire Weather Watch should be issued 24 to 72 hours in advance of the expected onset of criteria. A Watch may only be issued (or continued) in the first 12-hour time period for dry thunderstorm events.

A Fire Weather Watch should not be continued, or issued, to indicate low confidence or borderline conditions. In these situations, the forecaster should describe the expected conditions and reasons for uncertainty in the discussion portion of the routine Fire Weather Forecast. A forecaster should cancel a Fire Weather Watch if confidence is too low to continue it. Canceling a Watch does not necessarily mean the forecaster should remove the hazardous weather completely from the forecast.

2.4.1.2 Red Flag Warning. A Red Flag Warning is used to warn of an impending, or occurring Red Flag Event. Its issuance denotes a high degree of confidence that weather and fuel conditions consistent with local Red Flag Event criteria will occur in 24 hours or less. Forecasters can issue the warning for all or selected portions within a fire weather zone. The warning should remain in effect until the critical fire weather pattern ends.

2.4.2 Format and Content. The Fire Weather Watch and the Red Flag Warning will follow the formats specified below in the exhibits 2-6 and 2-7. The required elements are:

a. Mass Media Header. Use either FIRE WEATHER WATCH or RED FLAG WARNING as the first line to denote the type of product

b. The effective UGC Zone Codes and the product expiration

c. A headline which states "Fire Weather Watch" or "Red Flag Warning", the critical weather element(s) causing the event, the effective time of the event, and a description of the affected area

d. A discussion which describes adverse weather conditions

Exhibit (2-6) - Format of a FIRE WEATHER WATCH MESSAGE (RFW):

```
WWUS8i KNNN DDHHMM
RFWNNN

FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 0830 MDT TUE SEP 02, 2001)

SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)

...HEADLINE (of what, where, when)...

FIRE WEATHER ZONES (or COUNTIES) INCLUDED IN THIS WATCH ARE (optional):

LIST THE ZONES/COUNTIES (example: 429...431...435...WEST PORTIONS
433...436...437)

DISCUSSION: (Focus on adverse weather conditions; do not comment on fuel or
fire danger conditions.)

CALL TO ACTION (optional)
```

Exhibit (2-7) - Format of a RED FLAG WARNING MESSAGE (RFW):

```
WWUS8i KNNN DDHHMM
RFWNNN

RED FLAG WARNING
NATIONAL WEATHER SERVICE CITY STATE
TIME-DATE (example: 0830 AM MDT TUE SEP 02 2001)
```

```
SSZXXX-XXX>XXX-DDHHMM- (UGC/FIPS coding)

...HEADLINE (of what, where, when)...

FIRE WEATHER ZONES (or COUNTIES) INCLUDED IN THIS WARNING ARE (optional):

LIST THE ZONES/COUNTIES (example: 429...431...435...WEST PORTIONS
433...436...437)

DISCUSSION: (Focus on adverse weather conditions; do not comment on fuel or
fire danger conditions.)

CALL TO ACTION (optional)
```

2.4.3 Other Dissemination of Red Flag Information. Forecasters will place the FIRE WEATHER WATCH/RED FLAG WARNING headline in the routine Fire Weather Forecast (FWF). The headline will be placed in the pertinent zone section of the Fire Weather Forecast until the watch/warning expires or is canceled. The headline will include the warning type, location, and effective period. The location should be described in terms of geographic or other easily identified markers such as forest, parks, cities, towns, rivers, or highways. For instance, instead of stating "RED FLAG WARNING FOR ZONE 631 TONIGHT", the headline should read "RED FLAG WARNING TONIGHT FOR THE COLUMBIA BASIN OF NORTHEAST OREGON AND SOUTHEAST WASHINGTON".

Forecasters should include the RFW highlights in the appropriate list of highlights in the Area Forecast Discussion. Dissemination of RFW information on NOAA Weather Radio is left to local or regional policy.

2.5 Land Management Forecast (AWIPS I.D. FWL, WMO Header - FNUS8i). The Land Management Forecast product is a general-purpose, miscellaneous-type product with content, format, issuance, etc. determined per locally established requirements.

2.6 Smoke Management Forecast Product (AWIPS I.D. - SMF, WMO Header - FNUS7i). WFO staff issue smoke management forecasts at the request of land management agencies. The SMF may be issued on a routine basis, or issued as needed, and may be narrative, or tabular in format, or a combination of both. Forecasters may include the smoke management forecast as part of another weather product (for instance, the FWF) or as a separate product. The requester and the responsible NWS office should establish the content, format, frequency of issuance, dissemination method, etc.. This product may contain forecasts of the transport winds and the variability of transport winds with height and time, air mass stability, air dispersion and measures of dispersion, mixing depths and variations with time as well as other smoke management related parameters.

2.7 Rangeland/Grassland Fire Danger Statement (AWIPS I.D. - RFD, WMO Header - FNUS6i). A Rangeland, or Grassland Fire Danger Statement product is a miscellaneous product which provides advisory information on rangeland and/or grassland fire potential or conditions. Land management and NWS personnel should establish the contents, format, frequency of issuance, dissemination, etc.. This product may be issued on a routine or non-routine basis.

2.8 Storm Prediction Center (SPC) Fire Weather Outlook (AWIPS I.D. - FWD, WMO Header - FNUS21). The SPC will issue routine one and two Day Fire Weather Outlooks (Day 1 and Day 2) for the lower 48 states on AWIPS and the Web. These outlooks should describe large-scale meteorological conditions which, when combined with the antecedent fuel conditions, favor the rapid growth and spread of a fire, should a fire ignition occur. The outlook period for both days will extend from 12 to 12 UTC. These outlooks should serve as guidance for NWS forecasters as well as non-NWS users such as emergency managers.

2.8.1 Format. The text outlooks should follow the format specified in exhibit 2-8. The graphical products are provided via the Web and can be viewed at www.spc.noaa.gov/fire. The text format will include:

a. Headlines that highlight all critical fire weather areas

b. Synopsis of large-scale conditions affecting fire weather conditions across the lower 48 states

c. Individual fire weather areas with primary conditions affecting the area and a brief discussion of the forecast fire weather conditions

d. Other areas forecast to have marginal fire weather conditions but need to be monitored

Exhibit (2-8) - Format example of text version of SPC Fire Weather Outlook Product.

```
FNUS21 KWNS 021909
STORM PREDICTION CENTER...NWS/NCEP...NORMAN OK
400 AM CDT MON JUL 02 2001

DAY 1 FIRE WEATHER OUTLOOK...REF AWIPS GRAPHIC PMWE98 KWNS
VALID 021200-031200

...EXTREMELY CRITICAL FIRE WEATHER AREA FOR - ERN AZ...
...CRITICAL FIRE WEATHER AREA FOR - ID / WRN MT...
...CRITICAL FIRE WEATHER AREA FOR - OK

...SYNOPSIS...
(TEXT)

...EXTREMELY CRITICAL FIRE WEATHER AREA 1 - AZ...

PRIMARY CONDITIONS:  STRONG WINDS AND EXTREMELY LOW HUMIDITY
(TEXT)


...CRITICAL FIRE WEATHER AREA 2 - ID AND WRN MT...

PRIMARY CONDITIONS:  DRY THUNDERSTORMS.
(TEXT)

CRITICAL FIRE WEATHER AREA 3 - OK...
```

```
PRIMARY CONDITIONS:  STRONG WINDS AND LOW HUMIDITY
(TEXT)

(TEXT)

..FORECASTER..

SPC FIRE WEATHER OUTLOOKS ARE AVAILABLE AT WWW.SPC.NOAA.GOV/FIRE
```

2.8.2 Content. The outlooks (text and graphic) will highlight:

a. Significant Dry Thunderstorm Critical Fire Weather Areas (areas of numerous cloud-to-ground lightning strikes with generally less than one-tenth inch of rain across the area, scalloped lines on graphic)

b. Critical Fire Weather areas (based on fuel conditions and forecast weather, hatched area on graphic)

c. Extremely Critical Fire Weather areas (issued infrequently for only the most severe forecast and fuel conditions, hatched area on graphic)

The Day 1 and Day 2 text and graphics should be similar. Areas that are a marginal threat (lacking one critical element) should be depicted by SEE TEXT on the graphic and discussed last in the text message.

2.8.3 AWIPS IDs. The AWIPS Graphic IDs are:

		WMO
Day 1	RBGFW1	PMWE98 KWNS for Day 1 (valid 12 UTC today to 12 UTC tomorrow)
Day 2	RBGFW2	PMWI98 KWNS for Day 2 (valid 12 UTC tomorrow to 12 UTC the day after tomorrow)

The AWIPS Text IDS are:

		WMO
Day 1	MKCFWDDY1	FNUS21 KWNS for Day 1 (valid 12 UTC today to 12 UTC tomorrow)
Day 2	MKCFWDDY2	FNUS22 KWNSfor Day 2 (valid 12 UTC tomorrow to 12 UTC the day after tomorrow)

APPENDIX A - Product Examples

Table of Contents: Page

1. Fire Weather Forecast Product (FWF).

1.1 Narrative Format.

```
FNUS55 KBOI DDHHMM
FWFBOI

FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE BOISE IDAHO
930 AM MDT SAT JUL 14 2001

...SHOWERS AND THUNDERSTORMS TODAY AND SUNDAY...MAINLY AFTERNOON/EVENINGS...
...COOLER WITH SHOWERS MONDAY THROUGH WEDNESDAY...

.DISCUSSION...MOIST AND UNSTABLE SOUTHWESTERLY FLOW ALONG WITH WEAK
DISTURBANCES WILL CONTINUE TO TRIGGER MAINLY AFTERNOON AND EVENING
THUNDERSTORMS THROUGH SUNDAY. A LOW PRESSURE AREA IN THE GULF OF ALASKA WILL
ENTER THE PACIFIC NORTHWEST SUNDAY EVENING BRINGING COOLER CONDITIONS ALONG
WITH SHOWERS MONDAY THROUGH WEDNESDAY.

IDZ011-013-142200-
WEST CENTRAL IDAHO MOUNTAINS...(ZONES 401-404) INCLUDES PAYETTE NF AND BOISE
NF

.TODAY...
SKY/WEATHER.........PARTLY CLOUDY.  A CHANCE OF AFTERNOON SHOWERS AND
                    THUNDERSTORMS.
MAX TEMPERATURE.....UPPER 70S TO NEAR 90.
   24 HR TREND......LITTLE CHANGE.
MIN HUMIDITY........15-25 PCT.
   24 HR TREND......NO CHANGE.
WIND (20 FT)........
   VALLEYS..........LIGHT MORNING WINDS THEN UPSLOPE 4-8 MPH IN THE AFTERNOON.
   RIDGES...........WEST-SOUTHWEST 5-10 MPH.
HAINES INDEX........3 VERY LOW.
LAL.................3.
MIXING HEIGHT.......7000 FT AGL.
```

```
TRANSPORT WIND......NORTHWEST AROUND 5 MPH.

.TONIGHT...
SKY/WEATHER.........MOSTLY CLOUDY WITH A CHANCE OF EVENING SHOWERS AND
                    THUNDERSTORMS.
MIN TEMPERATURE.....45-55.
   24 HR TREND......LITTLE CHANGE.
MAX HUMIDITY........65-75 PCT. MODERATE-GOOD RECOVERY.
   24 HR TREND......DOWN 5 PCT.
WIND (20 FT)........
   VALLEYS..........DOWNSLOPE 3-7 MPH AFTER SUNSET.
   RIDGES...........SOUTH TO SOUTHWEST 5-10 MPH.
HAINES INDEX........3 VERY LOW.
LAL.................3.
MIXING HEIGHT.......LOWERING TO 1000 FT AGL.
TRANSPORT WIND......NORTHWEST 5 TO 10 MPH.

.SUNDAY...
SKY/WEATHER.........MOSTLY CLOUDY AND COOLER WITH A CHANCE OF SHOWERS.
MAX TEMPERATURE.....75-85.
MIN HUMIDITY........28-38 PCT.
WIND (20 FT)........
   VALLEYS..........LIGHT MORNING WINDS THEN SOUTHWEST 10-15 MPH IN THE
                    AFTERNOON.
   RIDGES...........SOUTHWEST 10 TO 15 MPH.
HAINES INDEX........3 VERY LOW.
LAL.................2.
MIXING HEIGHT.......6000 FT AGL.
TRANSPORT WIND......NORTHWEST 5 TO 10 MPH.

=
$$

[forecast for next geographical descriptor and fire weather zone group]

=
$$

.FORECAST DAYS 3 THROUGH 7...
.MONDAY THROUGH WEDNESDAY...COOLER WITH SHOWERS.  LOWS IN THE 40S TO NEAR 50.
HIGHS IN THE 70S TO NEAR 80. AFTERNOON NORTHWEST WINDS 10 TO 20 MPH.
.THURSDAY AND FRIDAY...PARTLY CLOUDY AND WARMER. LOWS NEAR 50. HIGHS IN THE
80S.

.OUTLOOK FOR SATURDAY JULY 21 2001 THROUGH FRIDAY JULY 27 2001...TEMPERATURES
AND PRECIPITATION ARE EXPECTED TO REMAIN NEAR NORMAL THROUGH THE PERIOD.
=
$$

NAME (OPTIONAL)
```

1.2 Tabular Format.

```
FNUS52 KTBW 051200
FWFTBW

FIRE WEATHER FORECAST
NATIONAL WEATHER SERVICE TAMPA BAY AREA RUSKIN FL
730 AM EST TUE FEB 5 2002

...LOW HUMIDITIES AGAIN THIS AFTERNOON BUT RELIEF IN SIGHT...
```

```
.DISCUSSION...NORTHEAST TO EAST WINDS WILL ALLOW MINIMUM HUMIDITIES TO DROP TO
AROUND 30 PERCENT BY MID-AFTERNOON. THE DRY INTERVAL SHOULD BE SHORT-LIVED AS
A STORM SYSTEM DEVELOPS OVER THE NORTHERN GULF AND WESTERN FLORIDA PANHANDLE
WEDNESDAY...DELIVERING WARMER TEMPERATURES BUT ALSO HIGHER HUMIDITIES ON A
MORE SOUTHEAST FLOW.  WEAK SHOWER CHANCES WILL RETURN OVER THE NORTH NEAR A
DEVELOPING WARM FRONT AS WELL AS OVER THE INTERIOR PORTIONS OF THE CENTRAL AND
SOUTH WEDNESDAY THROUGH FRIDAY.  THE WARM FRONT WILL MOVE NORTH OF THE REGION,
ALLOWING DRY AND WARMER WEATHER TO RETURN FOR THE WEEKEND.

FLZ042-043-048-052030-
CITRUS-HERNANDO-SUMTER-
730 AM EST TUE FEB 05 2002

PARAMETER               TODAY       TONIGHT     WEDNESDAY
CLOUD COVER             PCLDY       MCLDY       MCLDY
CHANCE PRECIP (%)       NONE        NONE        20
PRECIP TYPE             NONE        NONE        RAIN
TEMP (24H TREND)        64 (-2)     49 (-3)     72
RH % (24H TREND)        30          85          46
20FT WND MPH            E 11        E 6         SE 9
PRECIP DURATION         NONE        NONE        1
PRECIP BEGIN            NONE        NONE        4 PM
PRECIP END              NONE        NONE        CONTINUING
PRECIP AMOUNT           NONE        NONE        0.25
MIXING HGT (MSL)        2400        700         3100
TRANSPORT WIND(KTS)     E 15        E 8         SE 10

REMARKS...NONE.

$$

[forecast for next geographical descriptor and fire weather zone group]

$$

.FORECAST FOR DAYS 3 THROUGH 7...
.THURSDAY AND FRIDAY...CLOUDY AND COOLER WITH SCATTERED SHOWERS. LOWS 45 TO
50. HIGHS IN THE MID 60S.  WINDS BECOMING NORTH 15 TO 25 MPH THURSDAY
AFTERNOON.
.SATURDAY THROUGH MONDAY...PARTLY CLOUDY AND WARMER. LOWS IN THE 50S. HIGHS IN
THE 70S TO NEAR 80.  WINDS GENERALLY BELOW 15 MPH.

$$
```

2. National Fire Danger Rating System Product (FWM).

```
FNUS85 KBOI DDHHMM
FWMBOI

ZONE,403,011027,13,1,-3,0,1,1,0,0,,,,,0,0,N
ZONE,404,011027,13,0,3,0,1,1,0,0,,,,,0,0,N
ZONE,408,011027,13,0,4,-5,1,1,-3,0,,,,,0,0,N
FCST,102709,011027,13,0,4,-5,1,1,-3,0,,,,,0,0,N
```

3. Spot Forecasts for a Wildfire (FWS).

```
FNUS75 KBOI DDHHMM
FWSBOI

SPOT FORECAST FOR THE ROUGH DIAMOND FIRE...BOISE DISPATCH
```

```
ISSUED BY NATIONAL WEATHER SERVICE BOISE IDAHO
113 PM MDT MON AUG 27 2001

VALID UNTIL 113 AM MDT TUE AUG 28 2001
IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL WEATHER SERVICE.

...HOT AND DRY WITH AFTERNOON HUMIDITY BELOW 10 PCT...

DISCUSSION...UPPER RIDGE WILL KEEP CONDITIONS AT THE FIRE SITE HOT AND DRY
AGAIN TODAY.  WINDS WILL GENERALLY BE WEST TO NORTH...BUT SOME ERRATIC EDDIES
MAY OCCUR IN THE LOWEST VALLEY BOTTOMS WHERE UPSLOPE WINDS WILL CONFLICT WITH
THE FLOW ALOFT.  AFTERNOON HUMIDITIES WILL BE VERY LOW...DROPPING BELOW 10
PERCENT.

REST OF TODAY
SKY/WEATHER.........SUNNY AND CONTINUED HOT.
TEMPERATURE.........HIGH 92-95.
HUMIDITY............MIN 7-9 PCT.
WIND - EYE LEVEL....NORTH 5-10 MPH WITH GUSTS TO 15 MPH IN VALLEYS.  RIDGETOP
                        AND UPPER SLOPE WINDS NORTHWEST TO NORTH 10-15 MPH
                        WITH GUSTS TO 20 MPH POSSIBLE.  ERRATIC EDDIES
                    POSSIBLE IN VALLEY BOTTOMS.
HAINES INDEX........5 MODERATE.

TONIGHT
SKY/WEATHER.........CLEAR.
TEMPERATURE.........LOW 50-55.
HUMIDITY............MAX NEAR 30 PCT.
WIND - EYE LEVEL....VALLEYS: DOWNSLOPE 5-10 MPH. RIDGETOP/UPPER SLOPES:
                        NORTHWEST TO 10 MPH AFTER EVENING GUSTS TO 20 MPH.
HAINES INDEX........4 LOW.

TUESDAY
SKY/WEATHER.........SUNNY AND A LITTLE COOLER.
TEMPERATURE.........HIGH 86-89.
HUMIDITY............MIN 11-13 PCT.
WIND - EYE LEVEL....VALLEYS: NORTH 7-13 MPH.  RIDGETOP/UPPER SLOPES: NORTHWEST
                        10-20 MPH WITH AFTERNOON GUSTS TO 25 MPH.
HAINES INDEX........4 LOW.

FORECASTER...(optional)
```

4. Fire Weather Watch/Red Flag Warning.

4.1 Fire Weather Watch.

```
WWUS85 KSLC DDHHMM
RFWSLC

FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE SALT LAKE CITY, UT
0830 MDT TUE SEP 02, 2001

UTZ002>005-015>017-019-020-DDHHMM

...FIRE WEATHER WATCH FOR STRONG SOUTHWEST WINDS AND LOW HUMIDITIES WEDNESDAY
AFTERNOON FOR WESTERN UTAH...

FIRE WEATHER ZONES (or COUNTIES) INCLUDED IN THIS WATCH ARE:
```

```
429...431...435...WEST PORTIONS 433...436...437

DISCUSSION: A STRONG COLD FRONT WILL BE APPROACHING THE STATE LATE WEDNESDAY.
VERY LOW HUMIDITIES AHEAD OF THE FRONT AND STRONG WINDS ACCOMPANYING THE FRONT
COULD REACH RED FLAG CRITERIA.

PLEASE ADVISE THE APPROPRIATE OFFICIALS OR FIRE CREWS IN THE FIELD OF THIS
FIRE WEATHER WATCH.
```

4.2 Red Flag Warning.

```
WWUS85 KSLC DDHHMM
RFWSLC

RED FLAG WARNING
NATIONAL WEATHER SERVICE SALT LAKE CITY, UT
0830 AM MDT TUE SEP 02 2001

UTZ002>005-015>017-019-020-DDHHMM

...RED FLAG WARNING FOR STRONG SOUTHWEST WINDS AND LOW HUMIDITIES FROM NOON
UNTIL SUNSET FOR WESTERN UTAH...

FIRE WEATHER ZONES (or COUNTIES) INCLUDED IN THIS WARNING ARE:

429...431...435...WEST PORTIONS 433...436...437

DISCUSSION: A STRONG COLD FRONT WILL MOVE INTO NORTHWEST UTAH BETWEEN 1700-
1900 MDT AND THROUGH THE WASATCH FRONT BETWEEN 2000- 2300 MDT.  THE STRONGEST
WINDS WILL BE ON SOUTHERN ASPECTS AND FLAT TERRAIN IN THE WESTERN UTAH DESERTS
DURING THE LATE AFTERNOON.  WIND SPEEDS WILL INCREASE IN THE AFTERNOON TO 15-
30 MPH WITH GUSTS TO 45 MPH.

PLEASE ADVISE THE APPROPRIATE OFFICIALS OR FIRE CREWS IN THE FIELD OF THIS RED
FLAG WARNING.
```